Join us on the lawn
10:00 a.m. to 2:00 p.m.
Solar telescopes, interactive demonstrations, hands-on activities, food trucks and more!

Dawn: Mission to an Asteroid and Dwarf Planet
Interactive activities geared for children ages 5–8. Learn about science and engineering; meet mission team members; see touchable models and join in on the hands-on activities!

Mars: Mission to the Red Planet

Virtual Worlds: Mars, Moon, and Vesta in 3-D

New Horizons: Mission to Pluto

OSIRIS-REx: Asteroid Sample Return

Rosetta: Mission to a Comet

Icy Worlds, Ocean Worlds

Deep Space Network Communications: Whispers from Space

Caltech Chemistry Club

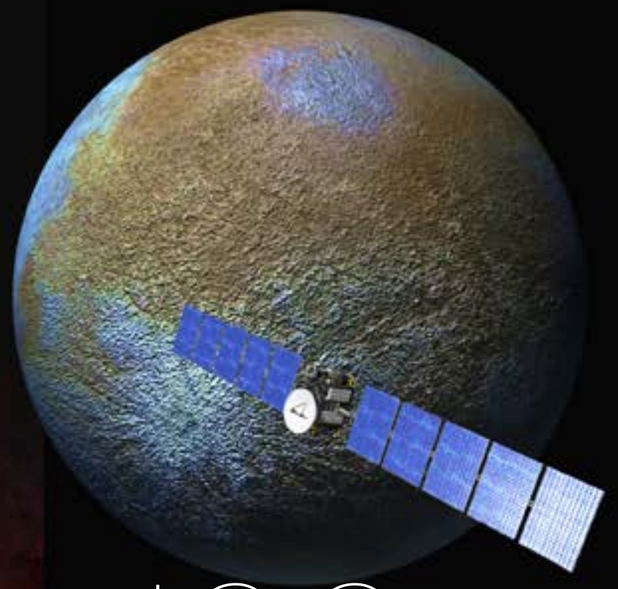
Caltech Society of Women Engineers

Virtual Planet Tour

The Planetary Society

Innoworks
Caltech Innoworks runs a free hands-on science camp at Caltech each summer. Student representatives will answer questions about signing up for camp, and demonstrate a variety of camp activities, including Lego Mindstorm Robotics!

National Aeronautics and Space Administration



I C Ceres Celebration

Saturday, May 9, 2015

Educational Stage
Learn about activities and programs that benefit students, teachers and lifelong learners in local communities and across the country through hands-on demonstrations, interactive displays and more.

California Institute of Technology
Pasadena, California

Welcome

The I C Ceres Celebration is part of a global event that marks the historic arrival of NASA's Dawn spacecraft at the dwarf planet Ceres.

Dawn has been exploring the solar system for more than seven years. After one year orbiting asteroid Vesta, returning fabulous, intriguing images, the spacecraft has begun its investigation of dwarf planet Ceres. Dawn is the first spacecraft ever to orbit two destinations!

Dawn will spend more than a year exploring Ceres, the largest object in the main asteroid belt between Mars and Jupiter, and a place that has remained a mystery since its discovery more than two centuries ago. This intriguing world may carry answers to the age-old questions about the earliest chapter in the history of the solar system.

Events

Community and Families
10:00 a.m. to 2:00 p.m.
Lawn south of Beckman Auditorium
Join representatives of NASA missions, who will present exhibits, mission hardware, models, and hands-on activities and demonstrations.

Science and Engineering Talks
12:30 p.m. to 4:30 p.m., Beckman Auditorium
You are invited to participate in a fun look at small worlds in our solar system, an entertaining talk about the Dawn mission and an overview of some of NASA's coolest missions during a panel discussion about icy worlds, asteroids and comets.

Images from Ceres
4:30 p.m., Beckman Auditorium
Following the panel discussion, the Dawn team plans to stream images of Ceres recently transmitted by the spacecraft.

Schedule of Science & Engineering Talks

Beckman Auditorium

Learn about the small icy worlds NASA is exploring in these popular science and engineering lectures. *The event will be broadcast live on Ustream, http://www.ustream.tv/caltech*

12:30 p.m. – 1:30 p.m. **Science Saturday**
Small Worlds 101: All about Asteroids, Comets and Dwarf Planets
A fun, interactive introduction for all ages with Vishnu Reddy, Research Scientist, Planetary Science Institute

1:30 p.m. – 2:00 p.m. Break

2:00 p.m. – 2:30 p.m. To Boldly Go ... Well, You Know: NASA's Dawn Mission to the Asteroid Belt
Marc Rayman, Dawn Mission Chief Engineer/ Mission Director, Jet Propulsion Laboratory (JPL)

2:30 p.m. – 4:30 p.m. **Panel Discussion**
You Want to Go Where? Exploring Icy Worlds in Our Solar System

Introduction
Jim Green, Director of Planetary Sciences, NASA Headquarters

Participants
Carol Raymond, Deputy Principal Investigator, JPL
Dawn mission to asteroid Vesta and dwarf planet Ceres

Dante Lauretta, Principal Investigator, University of Arizona
OSIRIS-REx asteroid sample return mission

Claudia Alexander, Project Scientist, JPL
U.S. Rosetta mission to comet 67P

Alan Stern, Principal Investigator, Southwest Research Institute
New Horizons mission to Pluto

4:30 p.m. **Images from Ceres**

Dawn — a Mission to Explore Asteroid Vesta and Dwarf Planet Ceres

The Dawn mission represents a journey in both space and time, traveling to the two oldest and most massive space rocks in the asteroid belt between Mars and Jupiter — Vesta and Ceres. Their surfaces are believed to contain a snapshot of the conditions present in the solar system's first 10 million years, allowing Dawn to investigate both the origin and the current state of the solar system. Vesta is a rocky body, while Ceres may contain large quantities of ice. Dawn has the unique ability to compare and contrast them and answer questions about the formation and evolution of the early solar system. Using an ion propulsion system, Dawn is the first mission to orbit and investigate two solar system objects.

OSIRIS-REx — Sample Return from Asteroid Bennu

OSIRIS-REx is the first U. S. mission to bring samples from an asteroid back to Earth. Scheduled for launch in September 2016, OSIRIS-REx (short for Origins-Spectral Interpretation-Resource Identification-Security-Regolith Explorer) will grab some asteroid dirt and return it to Earth in 2023. Near-Earth asteroid Bennu is the mission's target. Bennu is rich in carbon, a key element in organic molecules necessary for life, so it may tell us more about the building blocks of life on Earth. Asteroids like Bennu contain natural resources such as water, organics and precious metals. Bennu is also one of the most potentially hazardous asteroids, with a relatively high probability of impacting the Earth late in the 22nd century.

Rosetta — First Comet Orbiter and Lander

The European Space Agency's Rosetta — consisting of an orbiter and a lander called Philae — is conducting a detailed two-year study of comet 67P/Churyumov-Gerasimenko. After a 10-year journey, Rosetta went into orbit around the comet in August 2014, and Philae successfully landed on the comet's surface in November, sending back images and data. Rosetta is the first spacecraft to accompany a comet as it enters our inner solar system, observing at close range how the comet changes as the Sun's heat transforms it. NASA contributed three instruments to Rosetta and also is providing investigators and Deep Space Network support.

New Horizons — The First Look at Pluto

New Horizons is traveling three billion miles from Earth to carry out the first scientific investigation of Pluto and its moons. The close-up images and data collected by the spacecraft will help us understand the icy worlds at the edge of our solar system. The mission may also fly on to visit a Kuiper Belt Object. Why not orbit Pluto? To get to Pluto in just 9.5 years, the spacecraft must travel very fast, and will speed by Pluto at about 27,000 miles per hour. To get into orbit, the spacecraft's speed would have to be reduced by over 90 percent, which would require more than 1,000 times the fuel that New Horizons can carry. Going into orbit would also mean not going on to the Kuiper Belt, missing out on that unique opportunity.

Missions to the Small Icy Bodies of the Solar System

I C Ceres Celebration Lecture and Panel Participants

Dr. Jim Green is the Director of the Planetary Science Division at NASA Headquarters. At NASA's Marshall Space Flight Center he developed and managed the Space Physics Analysis Network. He has published over 100 scientific articles. Dr. Green assumed his current role in 2006.
• Fun fact: Jim is an authority on Civil War ballooning.
• Read his column at https://solarsystem.nasa.gov under News & Events

Dr. Carol Raymond is the manager of JPL's Small Bodies Program and the Deputy Principal Investigator on NASA's Dawn mission. Starting out as a marine geophysicist, she came to JPL in 1990, moving into planetary science with the Mars Global Surveyor mission and then the Dawn mission team.
• Fun fact: Carol believes science is a highly rewarding field and advises students not to be afraid to follow their own idea from conception to reality.

Dr. Vishnu Reddy's research focuses on asteroids, meteors and meteorites. He is a member of the Framing Camera team on NASA's Dawn mission and collaborates with the camera team at the Max Planck Institute for Solar System Research (Germany).
• Fun fact: Prior to graduate school, Vishnu participated in an astrometric survey as an amateur astronomer, discovering 23 new main belt asteroids and improving orbits of thousands of other asteroids.

Dr. Marc Rayman is the chief engineer and mission director for NASA's Dawn mission. Dr. Rayman joined JPL in 1986; his work there has included optical interferometry missions to detect exoplanets, design of a Mars sample return mission, and the Spitzer infrared space telescope.
• Fun fact: One room in Marc's home is devoted to space exploration, with a collection of information and memorabilia he began amassing at age 10.
• Read his blog at http://dawnblog.jpl.nasa.gov

Dr. Dante Lauretta is a Professor of Planetary Science and Cosmochemistry at the University of Arizona's Lunar and Planetary Laboratory and the Principal Investigator on NASA's OSIRIS-REx mission. Dr. Lauretta's research interests focus on the chemistry and mineralogy of asteroids and comets.
• Fun fact: Dante is a co-author of "Rich Hill: The History of Arizona's Most Amazing Gold District."
• Read his blog at http://dslauretta.com

Dr. Claudia Alexander is the Project Scientist for NASA's contribution to the European Space Agency's Rosetta mission. She worked for the U. S. Geological Survey studying plate tectonics and for NASA's Ames Research Center observing Jovian moons before moving to JPL in 1986, where she was named the final Project Manager of the Galileo mission to Jupiter.
• Fun fact: When she felt out of place in her college engineering courses, a professor guided her into a science project on Earth's carbon cycle. Fifteen years later, she was leading JPL's Rosetta science team.

Dr. Alan Stern is a planetary scientist, space program executive, aerospace consultant, author and the Principal Investigator of the New Horizons mission to Pluto. He has been a candidate space shuttle payload specialist, head of NASA's Science Mission Directorate, and associate vice president at Southwest Research Institute.
• Fun fact: Alan was listed among Time Magazine's 100 Most Influential People in The World In 2007.
• Follow his PI's Perspective at http://pluto.jhuapl.edu under News Center.

Talk Back to Us!

We would enjoy hearing about your visit to the I C Ceres Celebration. Tell us what you think by visiting our website at **http://dawn.jpl.nasa.gov/news/I_C_Ceres.html**